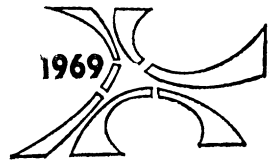
Dental Cooperation as Practiced in a Plastic and Jaw Injuries Center



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This special Center is situated in the most densely populated part of England, thirty miles south of London on the outskirts of a small country town. The hospital became a special surgical center during the Second World War, for plastic, maxillofacial and ophthalmic surgery. Soldiers, sailors, and airmen from all the allied nations were treated here, and the gratitude of some of these nations is perpetuated in the American surgical block of four operating theaters and the Canadian ward of thirty beds.

These three specialities are still maintained at this hospital, and the plastic, dental, and ophthalmic teams work in close harmony despite the overlapping of their anatomical fields.

The distribution of the work has been evolved over the last twenty-five years and has now reached a high degree of coordination (Figure 1).

The plastic and reconstructive surgery unit is responsible for the following: a) all general plastic and reconstructive surgery; b) all burns; c) the soft tissue repair of all clefts of lip and palate, and all bone grafts of these patients; d) craniofacial deformities (soft tissues); and e) maxillofacial injuries (soft tissues).

The dental and maxillofacial unit is responsible for the following: a) maxillofacial injuries involving the bony skeleton of the face; b) oral surgery; c) orthodontics of cleft lip and palate patients, and all dental surgical procedures associated with oral surgery and high speed injuries of children; and d) craniofacial deformities which concern the orthodontist in long-term rehabilitation planning.

The corneoplastic surgery unit is responsible for the following: a) all eye pathology; b) corneal grafts; c) craniofacial deformities affecting the eyes; and d) odonto-kerato-prostheses, in close conjunction with the dental unit.

It will be observed that many patients will need the combined work of two or more specialties, and it is absolutely vital for the patient that the units concerned cooperate in the combined treatment plan.

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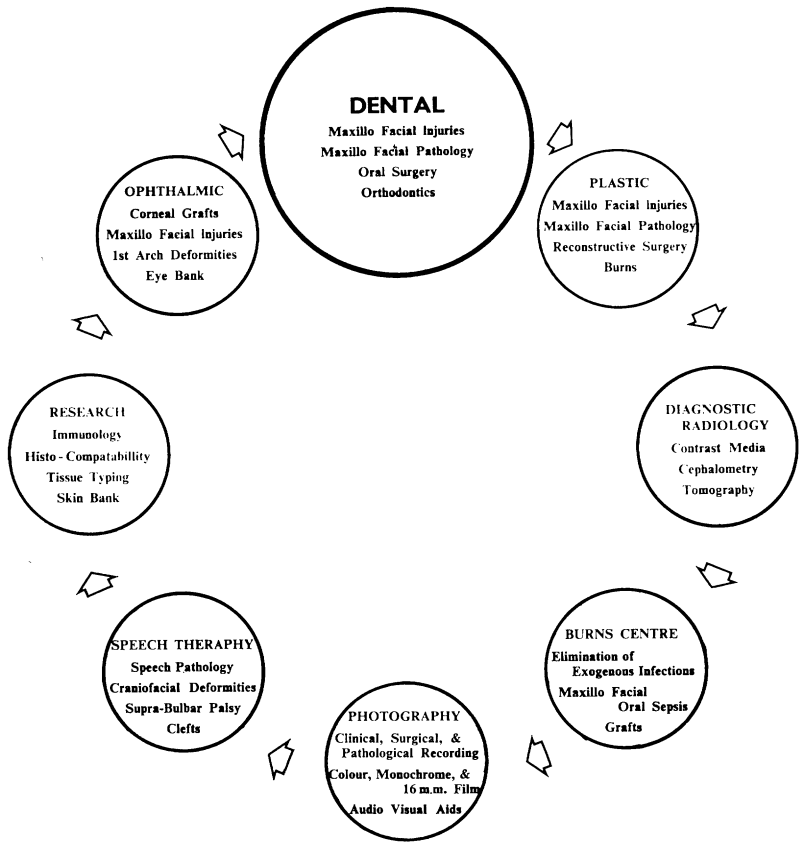

FIGURE 1. Diagrammatic representation of the main specialities working together at the special treatment center of Queen Victoria Hospital, East Grinstead.

Time will not permit me to discuss the combined treatment of the three units and I propose to limit my paper to the role of the orthodontist in this field.

Although all types of craniofacial deformities pass through this hospital, by far the commonest are the facial clefts (Figure 2). The team responsible for the overall rehabilitation of these patients is limited to three: the plastic surgeon, the orthodontist, and the speech therapist. Other specialities are at hand if needed, but I am sure that the secret of effective team work is the smallness of our team.

At East Grinstead, the treatment of most of the clefts of lip and palate follows a routine pattern which may be summarized as follows.

Presurgical Dental Orthopedics

Although this treatment was initiated in Great Britain, it now appears to have lost much of its original attraction, and I no longer employ this treatment. I consider that the benefits of presurgical dental orthopedics

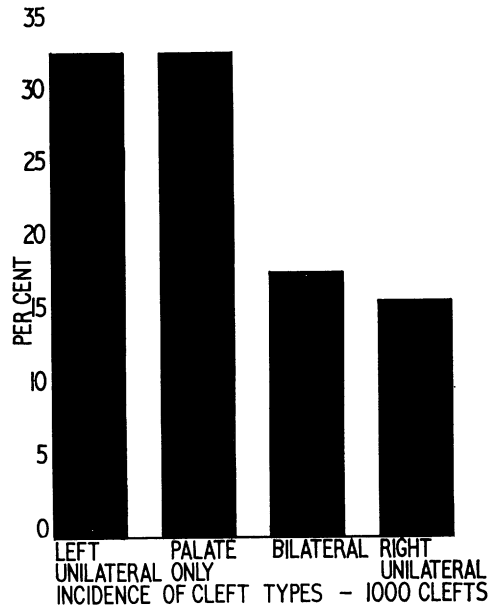

FIGURE 2. Analysis of a random sample of 1,000 cleft patients attending this center. Cleft of palate only, Column 2, is the only cleft type which will not need dental orthopedic treatment.

are very doubtful, and I have not yet been able to see any improvement in these cases in the mixed dentition age as compared with those patients who have not received this presurgical treatment.

Primary Bone Grafts

This procedure has been practiced for many years, some units being more enthusiastic than others. As an orthodontist I am not in favor of this procedure for the simple reason that I consider it to be detrimental to the child to unite bony maxillary segments by means of a bone graft before detailed study has been made of the tissue deficiency of the circumoral musculature.

It is my view that the soft tissue pattern of the face with all its muscle function must be restored before any bone grafting is contemplated. Furthermore the correction of any contraction or collapse of the maxillary segments, which can occur despite the graft, greatly complicates the work of the orthodontist in the mixed and permanent dentition age.

Lip Closure

At this center we prefer to close the lip and primary palate by three months of age. In this way the segments come under the influence of the restored circumoral muscles and move rapidly into a position of stability between the external and internal muscles of the mouth. Any delay in

the time of lip closure caused by prolonged dental orthopedic treatment is to be avoided, as lip repair in the neonatal period appears to us to give the best results.

Palatal Closure

We prefer to complete the palatal closure before 1½ years of age thus insuring the restoration of the muscular mechanism necessary for speech before speech has properly developed.

Routine Dentistry

This is not carried out at the center, but is performed by the family dental surgeon. Every effort is made to preserve the dentition of these patients.

Speech Assessment and Therapy

This is carried out in conjunction with the rest of the team and depends upon the cooperation of the child and upon his intelligence. We consider that the establishment of normal speech is the most important part of our team work; facial defects and dental malocclusion are of secondary importance compared with the necessity for understandable speech.

Dental Orthopedic Treatment

This may be carried out in the deciduous dentition or mixed dentition age, the object being to align the maxillary segments to give a normal arch and to obtain good upper to lower jaw occlusion.

Orthodontic Treatment

This treatment is delayed until the permanent teeth erupt and extends from seven years to fifteen years with long periods of rest and short periods of intensive tooth movement. It may be advisable to combine orthodontic and dental orthopedic treatment during these years.

Final Lip and Nose Surgery

This is delayed until at least sixteen years of age when facial growth is almost complete and the plastic surgeon is sure that the nose is almost of adult size.

Oral Surgery

Oral surgery may be necessary when growth is completed, to correct the true or pseudo prognathism associated with some clefts. At this unit, we prefer to reduce the prognathism by a reduction in the length of the horizontal ramus, but each case must be assessed according to the problems presented.

Prosthetic Treatment

Most cleft cases will need some form of prosthetic appliance to replace missing teeth, and these patients will remain prosthetic problems for the rest of their lives. As an orthodontist, I hesitate to discuss the prosthetic problems involved, but I am sure that the cleft palate team would benefit in their rehabilitation treatment plan if they reviewed the progress of their patient every ten years after the patient has reached adulthood.

Secondary bone grafts are performed if necessary, in the mixed dentition age, although they are occasionally performed in the deciduous dentition period. I consider that the most important function of a bone graft is to stabilize a mobile premaxilla. The prosthetic specialist will agree that the satisfactory fitting of the dentures in an edentulous mouth, in which the premaxilla is either absent or mobile, is almost an impossibility.

Other bone grafting is performed when, by eliminating the cleft by filling it with bone, the permanent teeth can be erupted into the graft; in this way any artificial tooth replacement can be avoided.

Special surgical procedures such as vomerine resection with premaxillary setback and splinting and secondary bone grafts are the combined responsibility of the surgeon and orthodontist.

Craniofacial deformities requiring treatment at this special unit include unilateral and bilateral first arch deformities and the various manifestations of cranial synostosis. Many have problems similar to clefts and are treated by the cleft team.

In this center, with its very advanced Burns Unit, facial and intraoral burns are not uncommon. These mutilating injuries produce severe scar tissue deformities of the soft and hard tissues of the face and mouth. The rehabilitation of these patients will involve the plastic and dental team in many hours of combined efforts.

The corneo-plastic unit cooperates in all injuries and deformities which come to the unit, especially facial injuries and also craniofacial deformities of the first branchial arch group. Such conditions as auricular mandibular hypoplasia, anophthalmia, and acrocephaly all need the team approach to their rehabilitation.

The restoration of sight by the odontokerato prosthesis needs considerable dental cooperation to provide the tooth section to carry the lens for the blind eye. This ingenious surgical procedure involving ophthalmic surgeon and dental surgeon is one of the highlights of combined operations.

Summary

A brief summary is provided of the role of dentistry in a special unit responsible for the rehabilitation of craniofacial deformities, acquired or

inherited. The most important consideration is complete coordination among departments with free discussion on procedures and searching inquiries into failures. Professional jealousy and financial gain are probably the cause of many of the poor results obtained by our predecessors, and the elimination of this gain and the alleviation of the unfortunate patient from all financial burdens, must prove the end results. The "jack of all trades" must be removed from this highly specialized treatment plan and the combined efforts of many specialists brought to bear on the treatment problem. Only in this way can the best results be achieved.

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